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EXAMINER

BELL, MELTIN

ART UNIT PAPER NUMBER

2121

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Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 09/854,337	<b>Applicant(s)</b> SCHMIDT, RICHARD Q.	
	<b>Examiner</b> Meltin Bell	<b>Art Unit</b> 2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 July 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No: \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/13/01 and 8/3/01</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

This action is responsive to application **09/854,337** filed 05/11/2001 as well as the Drawing Corrections and Amendments filed 7/15/04. Claims 1-30 filed by the applicant have been entered and examined. An action on the merits of claims 1-30 appears below.

#### ***Priority***

Applicant's claim for domestic priority against application number 60/203,216 filed **5/11/00** under 35 U.S.C. 119(e) is acknowledged.

#### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1, 19, 24, 26 and 28 stand rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The language of the claims (e.g. "rules", "situation", "collection", "patterns", "conclusions", "carrier medium") raise a question as to whether the claims are directed merely to an abstract idea that is not tied to a technological art, environment or machine which would result in a practical application producing a concrete, useful, and tangible result to form the basis of statutory subject matter under 35 U.S.C. 101. For example, if claim 1 was amended to

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recite a computer-implemented method and required performance of a result outside of a computer, it will be statutory in most cases since use of technology permits the function of the descriptive material to be realized.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 19 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 37 of copending Application No. 10/151,814. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 37 of copending Application #10/151,814 contain(s) every element of claim 19 of the instant application and as such anticipates claim 19 of the instant application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 102***

To expedite a complete examination of the instant application, the claims rejected under 35 U.S.C. 101 (nonstatutory) above are further rejected as set forth below in anticipation of applicant amending these claims to place them within the four statutory categories of invention.

Applicant's arguments filed 7/15/04 have been fully considered, but they are not persuasive. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 16-17 and 24-25 are rejected under 35 U.S.C. 102(b) as being anticipated by *Cohen* U.S. Patent Number 5,719,692 (Issued February 17, 1998).

**Regarding claim 16:**

*Cohen* teaches,

- a first code section executable to find within a collection of data related to said situation a representative collection of data comprising attribute patterns and associated conclusions (FIGS. 1 and 7; column 1, lines 26-38, "Unclassified data 107...to its class")

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- a second code section executable to compare a selected attribute pattern to all other attribute patterns associated with conclusions different than that of said selected attribute pattern in said representative collection to match irrelevant attribute elements between said selected attribute pattern and said compared attribute patterns (FIGS. 1 and 8, item 801)
- a third code section executable to remove said irrelevant attribute elements from said selected attribute pattern (FIGS. 1 and 9, item 903)
- a fourth code section containing logic executable to repeat said second and third code sections for each attribute pattern to form a set of rules (FIGS. 1 and 7, item 701)

**Regarding claim 17:**

- a fifth code section executable to remove redundant rules from said set of rules (FIGS. 1 and 11, item 1109)

**Regarding claim 24:**

*Cohen* teaches,

- a first code section executable to find within a collection of data related to said situation a representative collection of data comprising attribute patterns and associated conclusions (FIGS. 1 and 7; column 1, lines 26-38, "Unclassified data 107... to its class")
- a second code section executable to compare a selected attribute pattern to all other attribute patterns associated with conclusions different than that of said selected attribute pattern in said representative collection to match irrelevant attribute elements between said selected attribute pattern and said compared attribute patterns (FIGS. 1 and 8, item 801)

- a third code section executable to remove said irrelevant attribute elements from said selected attribute pattern (FIGS. 1 and 9, item 903)
- a fourth code section containing logic executable to repeat said second and third code sections for each attribute pattern to form a set of rules (FIGS. 1 and 7, item 701)

**Regarding claim 25:**

*Cohen* teaches,

- a first code section executable to find, within a collection of data related to a situation, a representative collection of data comprising attribute patterns and associated conclusions (FIGS. 1 and 7; column 1, lines 26-38, "Unclassified data 107...to its class")
- a second code section executable to compare a selected attribute pattern to all other attribute patterns associated with conclusions different than that of said selected attribute pattern in said representative collection to match irrelevant attribute elements between said selected attribute pattern and said compared attribute patterns (FIGS. 1 and 8, item 801)
- a third code section executable to remove said irrelevant attribute elements from said selected attribute pattern (FIGS. 1 and 9, item 903)
- a fourth code section containing logic executable to repeat said second and third code sections for each attribute pattern to form a set of rules (FIGS. 1 and 7, item 701)
- a fifth code section executable to remove redundant rules from said set of rules (FIGS. 1 and 11, item 1109)

Claim 18 is rejected under 35 U.S.C. 102(e) as being anticipated by *Barrack et al* U.S. Patent Number 6,047,279 (Issued April 4, 2000; Filed November 17, 1997).

**Regarding claim 18:**

*Barrack et al* teaches,

- a storage media coupled to said network and containing a set of data records related to said situation (FIG. 1; column 2, lines 56-67, "Gateway 12 includes...and response interactions")
- each of said data records includes an attribute pattern and an associated conclusion (column 3, lines 1-13, "Intelligent Gateway 12...incoming raw data")
- a processor coupled to said network and operable to manipulate said set of data records to form a representative collection of attribute patterns and associated conclusions storable on said storage media (FIGS. 1 and 2; column 3, lines 26-42, "IDEAS™ 13 a ... to be taken")
- said processor being further operable to manipulate said representative collection to remove attribute elements from each of said attribute patterns that are irrelevant to said associated conclusions to form a set of rules storable on said storage media (FIGS. 1 and 2, column 2, lines 56-67, "Gateway 12 includes...and response interactions")
- said processor is further operable to remove redundant ones of said rules from said set of rules to provide a complete and consistent rule set (Abstract, sentences 3-4, "The inventive system...the new element")



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Claims 19 and 21-22 are rejected under 35 U.S.C. 102(e) as being anticipated by *Yoshida* U.S. Patent Number 6,006,213 (Issued December 21, 1999; Filed March 28, 1995).

**Regarding claim 19:**

*Yoshida* teaches,

- finding all non-redundant fact patterns related to said situation in a data set (FIG. 1; column 2, lines 62-67, "When the temporary...a classification rule")
- identifying at least one attribute in each fact pattern that contributes to a respective conclusion associated with said fact pattern (column 1, lines 60-65, "The object is... good evaluation result")
- forming said set of rules using said identified attributes and said respective associated conclusions (column 2, lines 3-6, "A pattern is...is then output")

**Regarding claim 21:**

*Yoshida* further teaches,

- said data set consists of a set of records being selected to have a first conclusion in a reduced ratio with respect to a second conclusion (column 6, lines 14-22, "If the pattern...the root node"; column 6, lines 49-67, "The following steps...third and subsequent"; column 7, lines 1-18, "terms are prediction...the whole algorithm")

**Regarding claim 22:**

*Yoshida* further teaches,

- each said fact pattern is associated with a group of conclusions (column 5, lines 55-63, "Each node corresponds...may be stored")

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- said method further comprises a selecting a single conclusion from each of said groups as said respective associated conclusion (FIGS. 4-6; column 2, lines 62-67, "When the temporary... a classification rule")

***Claim Rejections - 35 USC § 103***

To expedite a complete examination of the instant application, the claims rejected under 35 U.S.C. 101 (nonstatutory) above are further rejected as set forth below in anticipation of applicant amending these claims to place them within the four statutory categories of invention.

Applicant's arguments filed 7/15/04 have been fully considered, but they are not persuasive. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-15, 20, 23, 26-27 and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Yoshida* U.S. Patent Number 6,006,213 (Issued December 21, 1999) in view of *Cohen* U.S. Patent Number 5,719,692 (Issued February 17, 1998).

**Regarding claim 1:**

*Yoshida* teaches,

- finding within a collection of data related to said situation a representative collection of data comprising attribute patterns and associated conclusions; forming said set of rules by: (column 1, lines 60-67, "The object is...computer is also"; column 2, lines 1-6, "converted into a...is then output")
- a) comparing a selected attribute pattern to all other attribute patterns associated with conclusions different than that of said selected attribute pattern in said representative collection to match irrelevant attribute elements between said selected attribute pattern and said compared attribute patterns (column 2, lines 42-49, "patterns appearing in...are then output")
- repeating a) and b) for each attribute pattern in said representative collection (FIG. 1; column 2, lines 59-61, "The pattern modification...pattern is extracted").

However, *Yoshida* doesn't explicitly teach removing irrelevant attribute elements while *Cohen* teaches,

- a) comparing a selected attribute pattern to all other attribute patterns associated with conclusions different than that of said selected attribute pattern in said representative collection to match irrelevant attribute elements between said selected attribute pattern and said compared attribute patterns (FIG. 9, items 903, 905 and 909)
- b) removing said irrelevant attribute elements from said selected attribute pattern (column 3, lines 21-33, "Pruning is implemented...the empty rule").

Motivation – The portions of the claimed method would have been a highly desirable feature in this art for

- Saving time and space while improving classification quality (*Cohen*, column 3, lines 61-65, “Making a small...the rule set”)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine *Yoshida* with *Cohen* for the purpose of saving time and space while improving classification quality.

**Regarding claim 2:**

The rejection of claim 2 is similar to that for claim 1 as recited above since the stated limitations of the claim are set forth in the references. Claim 2’s further limitations are taught in *Cohen*:

- removing redundant rules from said set of rules (column 4, lines 2-3, “rules are pruned...the description length”).

**Regarding claim 3:**

The rejection of claim 3 is similar to that for claim 2 as recited above since the stated limitations of the claim are set forth in the references. Claim 3’s further limitations are taught in *Yoshida*:

- said collection of data can be chosen to increase the relative occurrence of an infrequently occurring association between a subset of said attribute patterns and said associated conclusions (column 2, lines 59-61, “The pattern modification...pattern is extracted”; column 8, lines 5-28, “FIG. 9 illustrates...the learned operations”).

**Regarding claim 4:**

The rejection of claim 4 is similar to that for claim 1 as recited above since the stated limitations of the claim are set forth in the references. Claim 4's further limitations are taught in

1) *Yoshida*:

- finding said representative collection includes: (column 1, lines 60-67, "The object is...computer is also"; column 2, lines 1-6, "converted into a...is then output")
- forming said representative collection with an initial attribute pattern and an associated conclusion indication drawn from said collection of data (FIG. 1)
- a) selecting another attribute pattern from said collection of data (FIG. 1)
- b) comparing said selected attribute pattern with all attribute patterns in said representative collection (FIG. 1)
- d) adding a conclusion, indication associated with said selected attribute pattern to an associated conclusion indication of a matching attribute pattern in said representative collection (column 6, lines 14-19, "If the pattern...from each pattern")
- repeating a) through d) until all attribute patterns in said collection of data are exhausted (FIG. 1; column 2, lines 59-61, "The pattern modification...pattern is extracted"),

2) *Cohen*:

- c) adding said selected attribute pattern and an associated conclusion indication to said representative collection if said selected attribute pattern matches none of said attribute patterns in said representative collection (FIG. 8).

**Regarding claim 5:**

The rejection of claim 5 is similar to that for claim 4 as recited above since the stated limitations of the claim are set forth in the references. Claim 5's further limitations are taught in *Yoshida*:

- choosing a representative conclusion for each of said attribute patterns in said representative collection by identifying a predominant conclusion based on said associated conclusion indication (column 5, lines 46-52, "FIG. 4 illustrates...for each pattern").

**Regarding claim 6:**

The rejection of claim 6 is similar to that for claim 4 as recited above since the stated limitations of the claim are set forth in the references. Claim 6's further limitations are taught in *Yoshida*:

- selecting a representative conclusion for at least one of said attribute patterns in said representative collection based on relevant knowledge about said collection of data (column 2, lines 62-67, "When the temporary...a classification rule"; column 5, lines 55-63, "Each node corresponds...may be stored").

**Regarding claim 7:**

The rejection of claim 7 is the same as that for claim 4 as recited above since the stated limitations of the claim are set forth in the references.

**Regarding claim 8:**

The rejection of claim 8 is similar to that for claim 4 as recited above since the stated limitations of the claim are set forth in the references. Claim 8's further limitations are taught in *Yoshida*:

- said associated conclusion indication contains associated conclusion counts (column 3, lines 10-30, "In the designation... have the Pattern").

**Regarding claim 9:**

The rejection of claim 9 is similar to that for claim 2 as recited above since the stated limitations of the claim are set forth in the references. Claim 9's further limitations are taught in *Cohen*:

- each rule in said set of rules is expanded into a canonical form before removing said redundant rules (FIGS. 3-4; column 3, lines 8-20, "a rule is...the growing dataset"; column 1, lines 60-62, "classifier program 115...expressions are true") .

**Regarding claim 10:**

*Yoshida* teaches,

- each of said data records includes an attribute pattern and an associated conclusion (column 5, lines 45-52, "the patterns are...for each pattern").

However, *Yoshida* doesn't explicitly teach storage media or processors while *Cohen* teaches,

- a storage media containing a set of data records related to said situation (FIG. 1, item 103 MEMORY SYSTEM)

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- a processor operable to manipulate said set of data records to form a representative collection of attribute patterns and associated conclusions storable on said storage media (FIG. 1, item 105 DIGITAL PROCESSOR)
- said processor being further operable to manipulate said representative collection to remove attribute elements from each of said attribute patterns that are irrelevant to said associated conclusions to form a set of rules storable on said storage media (column 3, lines 21-33, "Pruning is implemented...the empty rule")
- said processor is further operable to remove redundant ones of said rules from said set of rules to provide a complete and consistent rule set (column 4, lines 2-3, "rules are pruned...the description length").

Motivation – The portions of the claimed system would have been highly desirable features in this art for

- Saving time and space while improving classification quality (*Cohen*, column 3, lines 61-65, "Making a small...the rule set")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine *Yoshida* with *Cohen* for the purpose of saving time and space while improving classification quality.

**Regarding claim 11:**

The rejection of claim 11 is similar to that for claim 10 as recited above since the stated limitations of the claim are set forth in the references. Claim 11's further limitations are taught in *Cohen*:

- a sample space including said set of data records (FIG. 1)



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- said processor being operable to select said set of data records from said sample space to increase a relative occurrence frequency of an infrequently occurring situation (column 4, lines 19-27, "The invention further...and multiple classes").

**Regarding claim 12:**

The rejection of claim 12 is similar to that for claim 10 as recited above since the stated limitations of the claim are set forth in the references. Claim 12's further limitations are taught in *Cohen*:

- said storage media contains at least one attribute pattern associated with a plurality of conclusions (FIG. 1)

- said processor is operable to select a single conclusion as a representative conclusion from said plurality based on a specified criteria (column 3, lines 8-20, "a rule is... the growing dataset").

**Regarding claim 13:**

The rejection of claim 13 is similar to that for claim 12 as recited above since the stated limitations of the claim are set forth in the references. Claim 13's further limitations are taught in *Yoshida*:

- said specified criteria is provided by an expert (column 1, lines 12-16, "The present invention... a person heretofore"; column 7, lines 56-67, "FIGS. 8a and... the user, the"; column 8, lines 1-4, "program for performing... by the user").

**Regarding claim 14:**

The rejection of claim 14 is similar to that for claim 10 as recited above since the stated limitations of the claim are set forth in the references. Claim 14's further limitations are taught in *Cohen*:

- said processor is operable to expand said set of rules into a canonical form before said redundant ones of said rules are removed (FIGS. 3-4; column 3, lines 8-20, "a rule is...the growing dataset"; column 1, lines 60-62, "classifier program 115...expressions are true").

**Regarding claim 15:**

The rejection of claim 15 is similar to that for claim 10 as recited above since the stated limitations of the claim are set forth in the references. Claim 15's further limitations are taught in *Yoshida*:

- said manipulation of said representative collection includes (FIG. 9; column 7, lines 34-43, "FIGS. 7A and...formatted of document")
- a comparator module coupled to said processor and operable to provide a comparison between a selected attribute pattern and all other attribute patterns having conclusions different that that of said selected attribute pattern (FIG. 1),

*Cohen*:

- a comparator module coupled to said processor and operable to provide a comparison between a selected attribute pattern and all other attribute patterns having conclusions different that that of said selected attribute pattern (FIG. 5, item 503)

- said processor is further operable to identify said irrelevant attribute elements in said selected attribute pattern as selected attribute elements that match attribute elements in said all other attribute patterns (column 3, lines 21-33, "Pruning is implemented...the empty rule").

**Regarding claim 20:**

*Yoshida's* teaches,

- finding all non-redundant fact patterns related to said situation in a data set (FIG. 1; column 2, lines 62-67, "When the temporary... a classification rule")
- identifying at least one attribute in each fact pattern that contributes to a respective conclusion associated with said fact pattern (column 1, lines 60-65, "The object is...good evaluation result")
- forming said set of rules using said identified attributes and said respective associated conclusions (column 2, lines 3-6, "A pattern is...is then output").

However, *Yoshida* doesn't explicitly teach removing rule redundancies while *Cohen* teaches,

- removing redundancies within said set of rules (column 3, lines 21-33, "Pruning is implemented...the empty rule"; column 4, lines 2-3, "rules are pruned...the description length").

Motivation – The portions of the claimed method would have been a highly desirable feature in this art for

- Saving time and space while improving classification quality (*Cohen*, column 3, lines 61-65, "Making a small...the rule set")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine *Yoshida* with *Cohen* for the purpose of saving time and space while improving classification quality.

**Regarding claim 23:**

The rejection of claim 23 is similar to that for claim 20 as recited above since the stated limitations of the claim are set forth in the references. Claim 23's further limitations are taught in *Cohen*:

- said rules are expanded into a canonical form prior to removing redundancies (FIGS. 3-4; column 3, lines 8-20, "a rule is...the growing dataset"; column 1, lines 60-62, "classifier program 115...expressions are true").

**Regarding claim 26:**

*Yoshida* teaches,

- obtaining a set of data records related to said situation, each data record containing a set of attributes and an associated conclusion (column 5, lines 45-52, "the patterns are extracted...for each pattern")
- forming a first set of mutually exclusive attribute patterns from said data records, each attribute pattern being associated with a respective conclusion group containing at least one conclusion (column 2, lines 42-67, "patterns appearing in...a classification rule")
- maintaining a count of data records associated each conclusion in each respective conclusion group (column 3, lines 9-17, "In the designation...nature of problem")
- forming a second set of attribute patterns from said first set, each attribute pattern in said second set being associated with a preferred conclusion chosen from said

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respective associated conclusion group, said attribute patterns in said second set containing attributes relevant to said situation, said second set of attribute patterns being formed by (FIG. 1; column 5, lines 55-63, "Each node corresponds...may be stored"; column 6 lines 14-22, "If the pattern...the root node")

- a) creating in said second set a copy of a selected attribute pattern with an associated preferred conclusion from said first set (FIG. 1; column 5, lines 55-62, "Each node corresponds...rules are applicable")

- b) comparing said copied selected attribute pattern to all other attribute patterns in said first set having associated preferred conclusions different from said associated preferred conclusion of said copied selected attribute pattern thereby identifying any attributes of said copied selected attribute pattern that are irrelevant to said situation (FIG. 1; column 2, lines 42-49, "patterns appearing in...are then output")

- repeating a), b) and c) for each attribute pattern in said first set to form said second set of attribute patterns comprising said set of rules (FIG. 1).

However, *Yoshida* doesn't explicitly teach removing irrelevant attribute patterns while *Cohen* teaches,

- b) comparing said copied selected attribute pattern to all other attribute patterns in said first set having associated preferred conclusions different from said associated preferred conclusion of said copied selected attribute pattern thereby identifying any attributes of said copied selected attribute pattern that are irrelevant to said situation (FIG. 9, items 903, 905 and 909)

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- c) removing said irrelevant attributes from said copied selected attribute pattern in said second set (column 3, lines 21-33, "Pruning is implemented...the empty rule").

Motivation – The portions of the claimed method would have been highly desirable features in this art for

- Saving time and space while improving classification quality (*Cohen*, column 3, lines 61-65, "Making a small...the rule set")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine *Yoshida* with *Cohen* for the purpose of saving time and space while improving classification quality.

**Regarding claim 27:**

The rejection of claim 26 is similar to that for claim 27 as recited above since the stated limitations of the claim are set forth in the references. Claim 26's further limitations are taught in *Yoshida*:

- choosing as said set of data records a subset of data records from all available data records to increase a relative occurrence of an infrequently occurring conclusion (column 2, lines 59-61, "The pattern modification...pattern is extracted").

**Regarding claim 28:**

*Yoshida* teaches,

- obtaining a set of data records, each data record containing a set of attributes forming an attribute pattern and an associated conclusion (column 5, lines 45-52, "the patterns are extracted...for each pattern")

- forming from said set of data records a first set of mutually exclusive attribute patterns each associated with a conclusion group containing at least one conclusion, said first set of attribute patterns being formed by (column 2, lines 42-67, "patterns appearing in... a classification rule")
- a) placing a copy of an initial attribute pattern and an initial associated conclusion from an initial data record into said first set of attribute patterns, said initial associated conclusion being placed in a conclusion group in said first set of attribute patterns, and initializing a first conclusion count for said initial associated conclusion placed in said first conclusion group (FIG. 1)
- b) reading an attribute pattern and an associated conclusion from a selected data record (FIG. 1)
- c) comparing said read attribute pattern to all attribute patterns of said first set of attribute patterns (FIG. 1)
- d) if said read attribute pattern matches none of said first set of attribute patterns, adding said read attribute pattern and said read associated conclusion from said selected data record into said first set of attribute patterns, said read associated conclusion being placed in another conclusion group associated with said read attribute pattern added to said first set of attribute patterns, and initializing another conclusion count for said read associated conclusion in said another associated conclusion group (column 6, lines 14-67, "If the pattern... third and subsequent"; column 7, lines 1-18, "terms are prediction... the whole algorithm")

- e) if a match between said read attribute pattern and said first set of attribute patterns is found and if said read associated conclusion is already in a conclusion group associated with said matched attribute pattern in said first set of attribute patterns, incrementing a conclusion count for said read associated conclusion in said conclusion group associated with said matched attribute pattern, and if said read associated conclusion is not already in said conclusion group associated with said matched attribute pattern, adding said read associated conclusion to said conclusion group associated with said matched attribute pattern and initializing a conclusion count for said added read associated conclusion (FIG. 1)
- f) selecting another data record and reading an attribute pattern and an associated conclusion from said selected data record (FIG. 1)
- repeating c) through f) until all attribute patterns for said set of data records are exhausted (FIG. 1)
- selecting a representative conclusion from each of said conclusion groups as a preferred conclusion based on criteria including said conclusion counts (column 5, lines 55-62, "Each node corresponds...rules are applicable")
- forming a second set of attribute patterns, each associated with respective preferred conclusions, said attribute patterns in said second set containing attributes relative to said situation, said second set of attribute patterns being formed by (FIG. 1)
- g) placing a copy of a selected attribute pattern and said associated preferred conclusion from said first set of attribute patterns into said second set of attribute patterns and comparing said copied selected attribute pattern to all other attribute



patterns in said first set of attribute patterns having associated preferred conclusions different from said associated preferred conclusion of said copied selected attribute pattern thereby identifying any attributes of said copied selected attribute pattern that are irrelevant to said situation (FIG. 1)

- repeating g) and h) for each attribute pattern in said first set of attribute patterns to form said second set of attribute patterns, said second set of attribute patterns and associated preferred conclusions forming said set of rules (FIG. 1).

However, *Yoshida* doesn't explicitly teach removing irrelevant attribute patterns while *Cohen* teaches,

- selecting a representative conclusion from each of said conclusion groups as a preferred conclusion based on criteria including said conclusion counts (column 3, lines 8-20, "a rule is...the growing dataset")

- g) placing a copy of a selected attribute pattern and said associated preferred conclusion from said first set of attribute patterns into said second set of attribute patterns and comparing said copied selected attribute pattern to all other attribute patterns in said first set of attribute patterns having associated preferred conclusions different from said associated preferred conclusion of said copied selected attribute pattern thereby identifying any attributes of said copied selected attribute pattern that are irrelevant to said situation (FIG. 9, items 903, 905 and 909)

- h) removing said irrelevant attributes from said copied selected attribute pattern in said second set (column 3, lines 21-33, "Pruning is implemented...the empty rule").

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Motivation – The portions of the claimed method would have been highly desirable features in this art for

- Saving time and space while improving classification quality (*Cohen*, column 3, lines 61-65, “Making a small... the rule set”)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine *Yoshida* with *Cohen* for the purpose of saving time and space while improving classification quality.

**Regarding claim 29:**

The rejection of claim 29 is the same as that for claim 26 as recited above since the stated limitations of the claim are set forth in the references.

**Regarding claim 30:**

The rejection of claim 30 is similar to that for claim 26 as recited above since the stated limitations of the claim are set forth in the references. Claim 30's further limitations are taught in *Yoshida*:

- at least one of said preferred conclusions is chosen based on relevant knowledge (column 1, lines 12-16, “The present invention... a person heretofore”; column 7, lines 56-67, “FIGS. 8a and... the user, the”; column 8, lines 1-4, “program for performing... by the user”).

## **RESPONSE TO APPLICANTS' AMENDMENT REMARKS**

### ***Drawings, Specification and Information Disclosure Statement (IDS) Objections***

Applicant argues that the Draftsperson did not indicate any objection due to a missing PTO-948 (Amendment REMARKS page 16, paragraph 2) and that the amendment to the specification on page 12, line 14 corrects a typographical error (Amendment REMARKS page 16, paragraph 3). Applicant's arguments have been fully considered and are persuasive. The objection to the drawings and specification have been withdrawn.

However, in reconsidering all of the 7/13/01, 8/3/01 and 12/12/02 IDS references (Paik USPN 6,076,088, Tuzhilin USPN 6,236,978 and Carpenter USPN 6,199,068 to name a few), it was noted that the IBM DB2 press release was missing text at the right margin. A complete copy of the reference is provided with this action as well as updated PTO-1449 sheets initialed, signed and dated 11/13/04 for references not previously considered.

### ***Claim Rejections - 35 USC § 101***

Applicant argues that the training materials prepared by the Office set forth the current state of the law and therefore claims 1, 19, 24, 26 and 28 are statutory (Amendment REMARKS page 17, paragraph 3). The Manual of Patent Examining Procedure sets forth guidelines for the examination of applications. The MPEP guidelines are not the law but are just guidelines for examiners to follow when they are doing their work. The examiner believes that he has followed the guidelines set forth in

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the MPEP, albeit the interpretation of those guidelines is not the same as applicant's interpretation. It is the examiner's position that the guidelines require the claims to set forth some improvement in the technological arts and here applicant has not done so. However, even under applicant's interpretation of the MPEP guidelines the claims are not statutory since the claimed invention is not tangible since the claims set forth no more than a disembodied data structure. The claims are not considered to be statutory.

Applicant argues that there is no test for an invention to have a practical application in the technological arts (Amendment REMARKS page 17, paragraph 4) citing In re Musgrave, 431 F.2d 882, 893; 167 U.S.P.Q. 280, 289 (CCPA 1970) for statutory support (Amendment REMARKS page 18, paragraph 2) and Diamond v. Chakrabarty, 447 U.S. 303 (1980) for U.S. Supreme Court interpretation (Amendment REMARKS page 18, paragraph 3). For this argument, the applicant is referred to Alappat 31 USPQ2D 1545, 1557 wherein it is stated that disembodied mathematical calculations are not patentable. This is the situation that we have here. Applicant should note that the claims do not state what is irrelevant.

Applicant argues that claim 24 was objected to for claiming non-statutory subject matter in the form of a "carrier medium" and cites In re Beauregard, 53 F.3d 1583 (Fed. Cir. 1995) as statutory support for withdrawing the objection (Amendment REMARKS page 18, paragraph 4 and page 19, paragraph 1). Claim 24 was not objected to, but was rejected as supported by for the reasons as stated above.

***Claim Rejections - 35 USC § 112, first paragraph***

The 35 USC 112, 1<sup>st</sup> paragraph rejection is withdrawn based upon our review that this rejection was unwarranted since it was based upon the 101 rejections. This is not to say that the 101 rejections are improper, but that the 112, 1<sup>st</sup> was improper since the 101 was not based on a lack of utility.

***Claim Rejections - 35 USC § 112, second paragraph***

Applicant argues that amended claim 4 corrects the typographical error (Amendment REMARKS page 19, paragraph 4). Applicant's arguments have been fully considered and are persuasive. The rejection of claim 4 has been withdrawn.

***Claim Rejections - 35 USC § 102***

Applicant argues that Cohen removes nonconforming data from the current rule set while irrelevant attribute elements are removed from associated attribute elements in the instant application (Amendment REMARKS page 20, paragraph 2). The examiner agrees with the applicant's argument. Applicant argues that Cohen removes irrelevant data which is the same as applicant's invention. If the data does not conform to the rule, it is irrelevant which is how applicant's invention works and also how Cohen's invention works.

Applicant argues that Barrack does not disclose manipulating data records to form a collection of attribute patterns and conclusions (Amendment REMARKS page 21, paragraph 1). Barrack at column 2, lines 55-67 does disclose manipulating data "filter

the data" to form a collection of attribute patterns "into discrete events" and associated conclusions "occurrences" such as "power failures", "card failures" and "similar incidents". The preceding items in quotations are considered to be the same as the claimed subject matter. Thus, Barrack is considered to anticipate claim 18.

Applicant argues that claim 19's step of identifying at least one attribute in each fact pattern that contributes to a respective conclusion associated with said fact pattern is not present in the Yoshida reference (Amendment REMARKS page 21, paragraph 3). It appears that the applicant misunderstands the examiner's position. This is regretted. It is the examiner's position that attributes and the fact patterns are coextensive; or in other words, each fact pattern is an attribute. Thus, claim 19 is not considered to be patentable.

### ***Claim Rejections - 35 USC § 103***

Applicant argues that Cohen does not properly cure Yoshida's deficiency with respect to claims 1, 10 and 26, removing irrelevant attribute elements (Amendment REMARKS page 22, paragraph 3). It appears that applicant has misunderstood the examiner's position. As stated in the rejection, Yoshida discloses all of the claimed subject matter except removing the irrelevant attributes. Cohen is relied upon to teach removing irrelevant attributes (see Cohen Coil. 3, lines 21-33). Therefore, claims 1, 10 and 26 are not considered to be patentable.

As set forth above with regards to Yoshida, Cohen and Barrack, the items listed explicitly and inherently teach each element of the applicants' claimed limitations.

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Applicants have not set forth any distinction or offered any dispute between the claims of the subject application, Yoshida's Method for learning data processing rules from graph information, Cohen's Rule induction on large noisy data sets and Barrack's System and method for automatic network management support using artificial intelligence.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

The following prior art made of record is considered pertinent to applicant's disclosure:

- *Schmidt*; USPAPN 2003/0023593; Real-time adaptive data mining system and method
- *Hiji et al* USPN 5,504,840; Knowledge acquisition support system and method in an expert system

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- Herz USPN 6,029,195; System for customized electronic identification of desirable objects

- Chang et al; USPN 6,704,728; Accessing information from a collection of data


Any inquiry concerning this communication or earlier communications from the Office should be directed to Meltin Bell whose telephone number is 571-272-3680. This Examiner can normally be reached on Mon - Fri 7:30 am - 4:00 pm.

If attempts to reach this Examiner by telephone are unsuccessful, his supervisor, Anthony Knight, can be reached on 571-272-3687. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MB / M.V.

  
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